REMARKS

The Applicants request amendment of the independent claims 1 and 6 to recite a transparent single diaphragm. The amendment is supported in, e.g., Fig. 4. Entry is proper because the requested amendment can put the case into condition for allowance by overcoming the outstanding rejection. The outstanding rejection is not based upon the number of diaphragms, so no new issue is raised; but at the same time, the requested amendment overcomes the rejection, for the reasons set out below. Therefore, entry is proper.

In response to the outstanding Office Action:

[1] The Examiner objects to the numeral "6" in claims 4 and 5. This numeral is removed to overcome the objection.

[2-3] All of the pending claims (claims 1-6 and 8-11) are rejected under 35 U.S.C. §103(a) as being obvious over Mellow, US 7,039,206 in view of Hasegawa, US 6,421,449, both newly applied. This rejection is respectfully traversed. Claim 1 as now requested to be amended recites a transparent *single* diaphragm.

Mellow discloses a diaphragm speaker 21 with *two* diaphragms 22, 23 forming a cavity 28 between them. The cavity is filled with gas, as described at col. 3, lines 6-19 and illustrated in Fig. 5. The diaphragms 22, 23 are of transparent polymer piezoelectric film with electrically conductive surface coatings 26, 27. The insulating support frame 24 does not itself vibrate. With a structure such as Mellow's, the speaker is thicker.

In contrast, the Applicants' speaker has a single diaphragm and works on a completely different principle—it is driven at the edge, rather than being fixed at the edge and driving itself. The single diaphragm provides a decreased thickness and a simpler structure that can be manufactured at a lower cost, providing advantages over Mellow.

Mellow Teaches Against One Diaphragm. It would be contrary to the teachings of Mellow itself to reduce the number of diaphragms to one. Mellow actively teaches against a single diaphragm at col. 1, lines 22-28: in fact, Mellow adds the second diaphragm to overcome what it sees as problems of a single diaphragm. It is not predictable or obvious from the prior art to go against Mellow's improvement by returning to the single diaphragm it teaches against.

Entry is Proper. Because the presently-requested amendment is directly contrary to the teaching of Mellow, the Applicants submit that it overcomes the rejection and therefore puts the case into condition for allowance.

Claim 6. With respect, independent claim 6 recites additional features which are not disclosed. For example, the Examiner asserts (page 5, line 6) that Hasegawa discloses the feature of a coil "being coiled more laterally than vertically." This feature of claim 6 is exemplified by the Applicants' Fig. 10 and is described in paragraph [0013] on page 9. All of Hasegawa's figures show a coil that is coiled more vertically than laterally—directly contrary to claim 6.

Additional Arguments. It is also noted that Mellow teaches that the speaker must be compact and lightweight (col. 1, lines 11-15), and a magnetic arrangement such as that of Hasegawa is both heavier and bulkier than a piezo structure of Mellow.

Mellow depends on the diaphragm being flexible (Figs. 6-7), but the flexible diaphragm of Mellow would flap if electro-magnetically driven by its edges, as the Examiner suggests.

With respect, the Examiner's assertion of greater efficiency (page 3, end of first paragraph), is unsubstantiated. The Applicants believe that piezo drivers are more, not less, efficient than drivers, in which the applied force is proportional to amperage. Piezo transducers are driven by voltage and have minimal current and joule heating.

The rejection of claim 2 is, with respect, incorrect; neither reference discloses this feature.

As to claim 3, a "periphery" is defined as an "external boundary" (Random House Dictionary) and Hasegawa's coil is at an inner boundary, not an external one.

The Examiner asserts that a feature of claim 6, a thicker middle portion of the diaphragm, is inherently obvious. However, a thicker middle portion, which provides increased the resistance to bending with minimal weight gain, is an adaptation that only makes sense for an edge-driven plate. The flexible, area-driven "polymer film" of Mellow (col. 3, line 10) would be made less responsive by such an adaptation. The prior art thus teaches against this feature, and therefore it is not obvious.

This same argument applies to claim 9 also. An analogous argument is presented against the rejection of claim 8.

The Examiner is invited to contact Applicants' undersigned attorney at the telephone number indicated below to discuss the case.

Respectfully submitted,

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